

## A NEW SPECIES OF *PUNTIUS* (CYPRINIDAE, CYPRININAE) FROM KERALA, INDIA<sup>1</sup>

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A new species of Cyprinid fish *Puntius muvattupuzhaensis* is described from the River Muvattupuzha, Ernakulam district, Kerala, southern India. It is a small, elongate *Puntius* species with characteristics: dorsal fin with unbranched principal ray osseous and serrated; lateral line (Ll) complete with 24-25 scales, lateral transverse scale-rows 4 between dorsal origin and lateral line, 2½-3 between lateral line and pelvic fin base, barbels absent, body with two spots on the flank: a shoulder spot below 4<sup>th</sup> Ll scale, and a caudal spot on 19<sup>th</sup>-21<sup>st</sup> Ll scales, dorsal fin without spots. Its affinity to the closest species, *P. punctatus* Day, and other related species is discussed. A key to Indian species, including the newly described one, having a strong, osseous and serrated principal dorsal fin ray, is provided.

**Key words:** Cyprinidae, *Puntius muvattupuzhaensis* sp. nov., Kerala

### INTRODUCTION

Cyprinid fish of the genus *Puntius*, owing to their species diversity and abundance, are ubiquitous in almost all types of freshwater bodies of both lowland and highland areas. The genus is widely distributed in South and Southeast Asian countries. Our systematic understanding about the species and their diversity, particularly in the context of the Indian sub-region, is based primarily on the works of Day (1865, 1875-78, 1889); Jayaram (1981, 1999); Talwar and Jhingran (1991); Menon (1999), including the description of an additional species from Manipur, India, by Menon *et al.* (2000) who treated *P. punctatus* as a distinct species.

During an ichthyological survey in Ernakulam district, Kerala, the authors collected five specimens of the genus *Puntius* from River Muvattupuzha at Ooramana, near Muvattupuzha town. On detailed study, the specimens were found to be distinct from all known species. Based on this study, a new species *Puntius muvattupuzhaensis* is created. Standard practices (Jayaram 1999) were followed while taking measurements. Data are presented in percentages, with the mean value followed by range within parentheses. The type specimens are deposited in the Zoological Survey of India, Western Ghats Field Research Station, Calicut (ZSI/ WGFRS / CLT)

*Puntius muvattupuzhaensis* sp. nov. (Fig. 1)

**Holotype:** F. 12241, ZSI / WGFRS, CLT, (Zoological Survey of India / Western Ghats Field Research Station, Calicut), 48 mm SL, Muvattupuzha river, Ooramana, Ernakulam

district, Kerala, India; 21.xi.2001; Coll. K.S. Jameela Beevi & A. Ramachandran.

**Paratypes:** Four specimens, 39- 48 mm SL; data same as for holotype.

**Diagnosis:** A small, elongate *Puntius* species without barbels; dorsal fin with an unbranched osseous and serrated principal ray; lateral line complete with 24-25 scales, lateral transverse scale rows 2½-3 between lateral line and pelvic fin insertion, body with two spots on flank: one small shoulder spot just below the 4<sup>th</sup> lateral line scale, and a caudal spot on 19<sup>th</sup>-21<sup>st</sup> lateral line scales.

**Description:** D. iii, 8; P. i, 11-13; V. ii, 7; A. iii, 5; C. 10+9. Body elongate, both dorsal and ventral profiles gently convex with predorsal part a little prominent. Depth of body 32.6 (30.4-34.9)% of SL; head small, its length 28.5 (26.1-33.3),

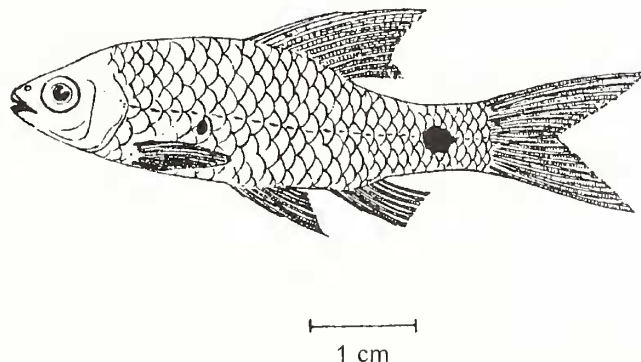


Fig. 1: Lateral view of *Puntius muvattupuzhaensis* sp. nov. Jameela Beevi & Ramachandran 48 mm SL. Holotype, F. 12241, ZSI/WGFRS, CLT

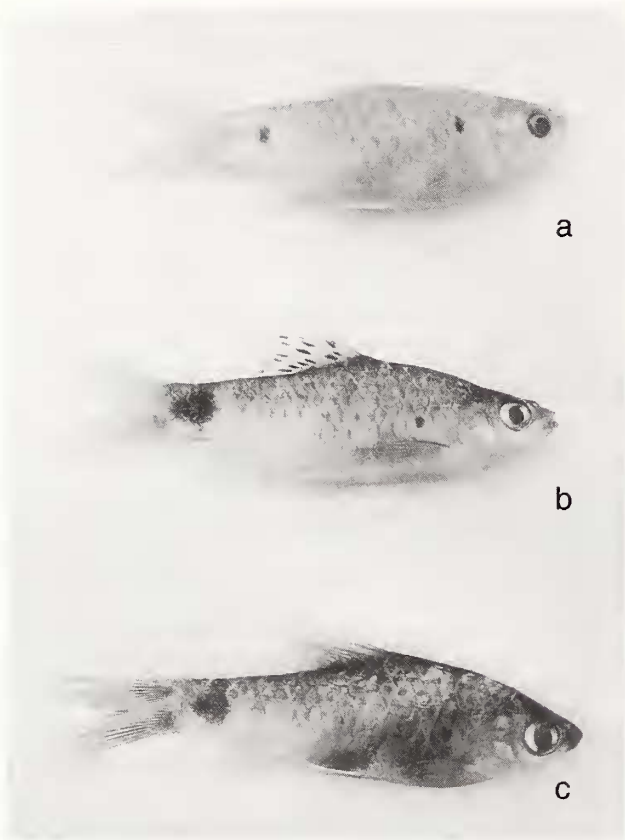


Fig. 2: Lateral view of similar *Puntius* species

a. Lateral view of *Puntius ticto*;

b. Lateral view of *Puntius punctatus*

F. 41-776 Estt. 86, ZSI, Chennai;

c. Lateral view of *Puntius muvattupuzhaensis* sp. nov.

48 mm SL. Holotype, F. 12241, ZSI/WGFRS, CLT

maximum depth 23.4 (21.7-25.0) of SL; snout short and smaller than eye, 24.4 (21.4-27.3) of head length (HL), 63.7 (60.0-66.9) of inter-orbital width (IOW); eyes large, its diameter 29.7 (28.6-30.9) of HL, 94.3 (80.0-100.0) of IOW; mouth arched inferior; barbels absent.

Dorsal fin origin equidistant from tip of snout and caudal fin base, both the predorsal distance and postdorsal distance nearly the same, 51.0 (48.8-53.8) of SL, distal fin margin straight or slightly concave, principal spinous ray of dorsal fin strongly osseous, serrated, with a distal flexible portion, dorsal fin height 27.7 (23.3-33.3) of SL and 90.4 (83.3-97.4) of HL. Pectoral fin almost reaching ventral fin, its length 20.1 (18.6-22.9) of SL, 70.9 (61.5-78.6) of HL, pre-pectoral distance 27.2 (26.2-29.2) of SL. Pelvic fin long and pointed, reaching anal opening, its length 21.1 (20.8-21.4) of SL, and 76.6 (71.4-81.8) of HL, pre-pelvic distance 50.6 (45.7-53.8) of SL. Anal fin long, nearly reaching caudal fin base, falling short of 2 or 3 scales from the latter, its length 67.9 (61.5-75.0) of HL, preanal distance 73.3 (69.8-76.9) of SL; caudal fin forked, its lobes pointed. Caudal

peduncle depth 63.3 (62.5-70.0) of its length, 12.9 (10.9-14.3) of SL. Maximum length of body cavity 44.4 (41.9-45.8) of SL.

Scales large; lateral line complete with 24-25 scales; scale rows in transverse series between dorsal fin origin and lateral line 4; 2½-3 scale rows between lateral line and pelvic fin base; predorsal scales 8.

**Colour:** Live specimen: olive green back, silvery on flanks and belly. Dorsal fin reddish; pelvic and anal fins golden yellow, pectoral and caudal fins faintly greyish. Two spots on flank: a black shoulder spot on the scale below the 4<sup>th</sup> lateral line scale, and a caudal spot inside a golden ring on scales 19-21. After preservation: upper half blackish with scales edged with fine black spots, lower half silvery white, with two distinct black spots on the body. Fins, dorsal greyish without spots, the other fins light in colour.

**Distribution:** INDIA: Kerala: Ernakulam (Muvattupuzha river).

**Etymology:** The new species is named after the river the fish specimens were collected from.

**Remarks:** The new species, *P. muvattupuzhaensis* is closely related to *P. punctatus* (Day) occurring in the southwestern extremity of peninsular India, and Sri Lanka. Both species have similar characters, namely complete lateral line, and identically placed shoulder and caudal spots on the body. However, *P. muvattupuzhaensis* is easily distinguished by its more elongate body (depth 32.6% SL vs. 36.4% SL in *P. punctatus*), including a narrow caudal peduncle (12.9% SL vs. 15.1% SL and 63.3% CL vs. 96.6% CL in *P. punctatus*), fewer lateral transverse scale rows (2½-3 vs. 4, in *P. punctatus*). Dorsal fin devoid of rows of spots (vs. rows of spots invariably present in *P. punctatus*). *P. muvattupuzhaensis* strikingly resembles *P. manipurensis* Menon, Rema Devi & Viswanath known from Manipur, in the northeast extremity of India, by having similar features like elongate body shape, and body spots, but differs from it in having a complete lateral line, fewer transverse scale rows between lateral line and pelvic fin insertion (2½-3 vs. 3½ in *P. manipurensis*).

The affinity of the new species to *P. ticto* (Ham.) is suggested by shared characters such as absence of barbels, dorsal fin with an unbranched, osseous and serrated principal spiny ray, and two black spots (shoulder and caudal spots) on body. *P. muvattupuzhaensis* sp. nov. belongs to the *ticto* group of species (Jayaram 1981) represented by *P. ticto* (Ham.), a species widely distributed in the Indian sub-region. The fishes of the *ticto* group exhibit considerable variation in their characteristics, which indicates a tendency towards speciation influenced by various isolating factors in far-flung geographical areas, such as northeastern and southwestern India. It is possible that these differences indicate an incipient stage in the formation of a new species. The new species,

## NEW DESCRIPTIONS

*P. muvattupuzhaensis* can be presumed to have evolved from the parent stock of *P. ticto*, in southwestern peninsular India.

### KEY TO *PUNTIUS* SPP. WITH A STRONG, OSSEOUS AND SERRATED PRINCIPAL DORSAL FIN RAY

1. Barbels (one pair of maxillary) present ..... 2
- Barbels absent ..... 3
2. Body depth 5 times in SL; a black spot over anterior part of anal base ..... *P. sharmai* Menon & Rema Devi
- Body depth 4 times in SL; no black spot over anterior part of anal base ..... *P. fraseri* Hora & Misra
3. Lateral line (Ll) scales 36 or more ..... *P. ambassis* (Day)
- Ll scales less than 36 ..... 4
4. Ll scales more than 30; predorsal scales 15 .....  
..... *P. guganio* (Ham.)
- Ll scales less than 30; predorsal scales less than 15 ..... 5
5. Lateral transverse (Ltr) scale-rows 5½ / 5½ .....  
..... *P. conchoni* (Ham.)
- Ltr scale-rows fewer ..... 6
6. Ltr scale-rows between Ll and pelvic fin base 4-½ .....  
..... *P. ticto* (Ham.)
- Ltr scale-rows between Ll and pelvic fin base less than 4-½ ..... 7
7. Ll incomplete ..... 8
- Ll complete ..... 11
8. Ll series of scales 24 or more ..... *P. gelius* (Ham.)
- Ll series of scales less than 24 ..... 9
9. Body with a horizontal line on flank; caudal peduncle with two dark blotches ..... *P. shalynius* Yazdani & Talukdar
- Body without a horizontal line on flank; caudal peduncle without paired blotches ..... 10

10. Body deep, with vertical bands; dorsal fin with a band and without spots ..... *P. phutunio* (Ham.)
- Body shallow, without bands, but with 2 spots; dorsal with 2 rows of spots .....  
..... *P. manipurensis* Menon, Rema Devi & Viswanath
11. Ll with 20 scales ..... *P. setnai* Chhapgar & Sane
- Ll with more than 20 scales ..... 12
12. Two widely separated black spots on body, anterior one above 3<sup>rd</sup> Ll scale and the posterior one before 19<sup>th</sup> Ll scale; dorsal fin without spots ..... *P. stoliczkanus* (Day)
- Two widely separated black spots on body, anterior one below 3<sup>rd</sup> Ll scale and the posterior one beyond 19<sup>th</sup> Ll scale; dorsal fin with or without spots ..... 13
13. Ltr scale-rows 5/4; dorsal fin with rows of spots .....  
..... *P. punctatus* (Day)
- Ltr scale-rows 4 / 2½-3; dorsal fin without spots .....  
..... *P. muvattupuzhaensis* sp. nov.

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